

Grades PreK–2: Geometry

STANDARD I. Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships.

EXPECTATION A. Recognize, name, build, draw, compare, and sort two- and three-dimensional shapes.

PreK	K	1	2
1. Identify, name, model, and draw two-dimensional geometric shapes (circle, square, triangle, rectangle).	*1. Identify, model, and draw two-dimensional geometric shapes (circle, square, triangle, rectangle). 2. Investigate three-dimensional shapes in informal settings.	1. Describe and draw two-dimensional geometric shapes and match plane figures to the appropriate name (circle, square, triangle, rectangle). 2. Identify, sort, and classify two-dimensional geometric shapes according to their attributes (size, shape, color).	1. Describe, model, and draw two-dimensional geometric shapes with up to eight sides. 2. Identify, name, model, and draw two-dimensional geometric shapes with up to eight sides.
3. Sort two-dimensional shapes according to attributes.	3. Identify examples of three-dimensional shapes seen in the environment (cube, sphere, cone, cylinder).	3. Sort two- and three-dimensional models given prescribed criteria.	

EXPECTATION**B. Describe attributes and parts of two- and three-dimensional shapes.**

PreK	K	1	2
*1. Compare the size (larger/smaller) and shape of plane geometric figures (circles, triangles, squares, rectangles)	*1. Classify concrete two- and three-dimensional objects according to one or more attributes including color, size, shape, and thickness. 2. Locate two-dimensional shapes on parts of three-dimensional objects.	*1. Compare and describe three-dimensional shapes according to the number and shape of faces, edges, bases, and corners (cube, rectangular solid, square pyramid). 2. Draw, describe, and order triangles, squares, rectangles, and circles according to the number of sides, corners, and square corners.	*1. Compare and contrast plane and solid geometric shapes (circle/sphere, square/cube, triangle/pyramid, rectangle/rectangular solid).

EXPECTATION**C. Investigate and predict the results of putting together and taking apart two- and three-dimensional shapes.**

PreK	K	1	2
1. Investigate the results of combining and partitioning geometric shapes (square, rectangle, triangle, circle).	1. Combine and subdivide geometric shapes and discuss the results (square, rectangle, triangle, circle).	1. Using manipulatives, combine and subdivide geometric shapes to create a new shape or design.	1. Predict the results of combining and partitioning two- and three-dimensional geometric shapes.

STANDARD

II. Specify locations and describe spatial relationships using coordinate geometry and other representational systems.

EXPECTATION

A. Describe, name, and interpret relative positions in space and apply ideas about relative position.

PreK	K	1	2
1. Use positional words to describe the location of objects (<i>up, down, on, off, over, under</i>).	*1. Use positional words to describe the location of objects (<i>near, far, up, down, below, above, beside, next to, between, over, under</i>).	1. Apply a knowledge of relative position to objects in space through conversations, demonstrations, and stories.	

EXPECTATION

B. Describe, name, and interpret direction and distance in navigating space and apply ideas about direction and distance.

PreK	K	1	2
		1. Describe the direction from one object to another on a pictorial map using words such as <i>up, down, left, and right</i> .	1. Compare distances between objects on a pictorial map using words such as <i>closer to and farther than</i> .

EXPECTATION

C. Find and name locations with simple relationships such as “near to” and in coordinate systems such as maps.

PreK	K	1	2
		*1. Identify locations on a pictorial map using the positional words <i>next to, beside, between, and across</i> .	*1. Identify locations on a pictorial map using the positional words <i>left, right, north, south, east, and west</i> .

STANDARD

III. Apply transformations and use symmetry to analyze mathematical situations.

EXPECTATION

A. Recognize and apply slides, flips, and turns.

PreK	K	1	2
		1. Choose the figure that is the result of a transformation of a geometric shape (slide, flip, or turn).	1. Predict the results of and demonstrate transformations of geometric shapes, including slides, flips, and turns.

EXPECTATION

B. Recognize and create shapes that have symmetry.

PreK	K	1	2
	*1. Identify and describe shapes in the world that show symmetry across a line (nature, art, the human body).	*1. Draw lines of symmetry through shapes to divide them into congruent shapes.	*1. Using various concrete materials, create figures that are symmetrical across a line.

STANDARD

IV. Use visualization, spatial reasoning, and geometric modeling to solve problems.

EXPECTATION

A. Create mental images of geometric shapes using spatial memory and spatial visualization.

PreK	K	1	2
		1. Draw geometric objects based on a mental image.	1. Create geometric objects based on mental images.

EXPECTATION**B.** Recognize and represent shapes from different perspectives.

PreK	K	1	2
	1. Recognize geometric shapes in different positions. 2. Find and identify geometric patterns in real-world settings (tile floors, sidewalks, art).	1. Describe congruent and similar shapes. 2. Find and identify geometric patterns in real-world settings (tile floors, sidewalks, art).	

EXPECTATION**C.** Relate ideas in geometry to ideas in number and measurement.

PreK	K	1	2
	1. Recall the configuration of dots on dominoes or name objects seen briefly.	1. Reproduce collections of shapes and dot configurations after viewing them briefly.	1. Analyze and predict the effect on the number of pieces used to form a geometric shape when various arrangements are formed using the same number of pieces.
	2. Identify, describe, and extend a repeating pattern found in common objects, numerals, sounds, and movements.	2. Compare/contrast two different units of length used to measure the same object.	2. Using square tiles, grid paper, and unifix cubes, connect geometry to related concepts in measurement and number.
	3. Compare the relative size of objects as bigger, smaller, or the same.		

EXPECTATION**D. Recognize geometric shapes and structures in the environment and specify their location.**

PreK	K	1	2
1. Locate geometric shapes in the environment.	1. Identify and describe objects in the environment that depict geometric figures (triangle, rectangle, square, and circle). 2. Connect geometrical patterns and their relationships with other aspects of mathematics and with other disciplines.	1. Identify and describe geometry in the environment, including applications in science, art, and architecture. 2. Recognize, describe, extend, and create a wide variety of patterns using geometric symbols and objects.	1. Describe relationships among geometric shapes in the environment, including applications in science, art, and architecture. 2. Recognize, describe, extend, and create a wide variety of patterns using geometric symbols and objects.